PB85-213742

Superfund Record of Decision (EPA Region 2) Pijak Farm Site, New Jersey, September 1984

(U.S.) Environmental Protection Agency
Washington, DC

30 Sep 84

U.S. Department of Commerce
National Technical Information Service
NTIS

United States
Environmental Protection
Agency

Office of
Emergency and
Remedial Response

EPA/ROD/R02-84/009
September 1984

PB85-213742

EPA

Superfund Record of Decision:

Pijak Farm Site, NJ

REPRODUCED BY
NATIONAL TECHNICAL
INFORMATION SERVICE
U.S. DEPARTMENT OF COMMERCE
SPRINGFIELD, VA. 22161

TECHNICAL REPORT DATA
(Please read Instructions on the reverse before completing)

1. REPORT NO.	2.	3. RECIPIENT'S ACCESSION NO.
EPA/ROD/RO2-84/009		PB85 213742/AS

4. TITLE AND SUBTITLE	5. REPORT DATE
SUPERFUND RECORD OF DECISION: Pijak Farm Site, NJ	09/30/84
	6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S)	8. PERFORMING ORGANIZATION REPORT NO.
9. PERFORMING ORGANIZATION NAME AND ADDRESS Same as box 12.	10. PROGRAM ELEMENT NO.
	11. CONTRACT/GRANT NO.
12. SPONSORING AGENCY NAME AND ADDRESS U. S. Environmental Protection Agency 401 "M" Street, S. W. Washington, D. C. 20460	13. TYPE OF REPORT AND PERIOD COVERED Final ROD Report
	14. SPONSORING AGENCY CODE 800/00

15. SUPPLEMENTARY NOTES

16. ABSTRACT

The Pijak Farm is located approximately two miles northeast of the Town of New Egypt in Plumsted Township, Ocean County, New Jersey. The site is approximately 87 acres and is relatively flat with portions that drop off into a marshy, wooded flood plain. Between 1963 and 1970, drums and free-flowing liquids from a facility disposing of specialty and research chemicals were dumped into a natural ditch which traversed the site and were later covered with soil. The deteriorated remains of drums are visible along the edge of the flood plain. Contaminants found at the site include: halogenated hydrocarbons, PCBs, phenolic compounds and oil sludges. The principle contaminants found onsite are not priority pollutants.

The cost-effective remedial alternative selected for this site includes: removal and off-site disposal of all drums and lab packs to a RCRA facility; excavation and off-site disposal of visibly contaminated soil to a RCRA facility; pumping and removal of contaminated ground water, as necessary, during excavation; monitoring on-site wells, annually, for a five year period and sediment control during excavation and sampling efforts. The capital cost for the selected alternative is estimated to be $1,962,750 and the five-year O&M ground water monitoring costs are estimated to be $53,600.

D/S (Key Words on Attached Sheet)

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Record of Decision Site Name: Pijak Farm Site, NJ Contaminated Media: GW, SW, Soil, Stream Sediments Key Contaminants: PCBs, Phenols, Oils, Halogenated hydrocarbons, VOCS, pesticides, metals		

18. DISTRIBUTION STATEMENT	19. SECURITY CLASS *(This Report)*	21. NO. OF PAGES
	None	43
	20. SECURITY CLASS *(This page)*	22. PRICE
	None	A8.50

EPA Form 2220-1 (Rev. 4-77) PREVIOUS EDITION IS OBSOLETE

16. ABSTRACT (Continued)

Key Words: Direct Contact, Excavation, Ground Water Contamination, NDD, ROD

ATTENTION

AS NOTED IN THE NTIS ANNOUNCEMENT, PORTIONS OF THIS REPORT ARE NOT LEGIBLE. HOWEVER, IT IS THE BEST REPRODUCTION AVAILABLE FROM THE COPY SENT TO NTIS.

DIRECT QUESTIONS RESULTING FROM ILLEGIBILITY TO:

MS. L. DEROSE
U. S. EPA
OSWER-HSCD
202-382-3304

DOCUMENT COMPLETE AS PAGINATED BY SOURCE

ROD ISSUES ABSTRACT

Site: Pijak Farm, New Jersey

Region: II

AA, OSWER
Briefing: September 27, 1984

SITE DESCRIPTION

The Pijak Farm is located approximately two miles northeast of the Town of New Egypt in Plumsted Township, Ocean County, New Jersey. The site is approximately 87 acres and is relatively flat with portions that drop off into a marshy, wooded flood plain. Between 1963 and 1970, drums and free-flowing liquids from a facility disposing of specialty and research chemicals were dumped into a natural ditch which traversed the site and were later covered with soil. The deteriorated remains of drums are visible along the edge of the flood plain. Contaminants found at the site include: halogenated hydrocarbons, PCBs, phenolic compounds and oil sludges. The principle contaminants found onsite are not priority pollutants.

SELECTED ALTERNATIVE

The cost-effective remedial alternative selected for this site includes: removal and off-site disposal of all drums and lab packs to a RCRA facility; excavation and off-site disposal of visibly contaminated soil to a RCRA facility; pumping and removal of contaminated ground water, as necessary, during excavation; monitoring on-site wells, annually, for a five year period and sediment control during excavation and sampling efforts. The capital cost for the selected alternative is estimated to be $1,962,750 and the five-year O&M ground water monitoring costs are estimated to be $53,600.

ISSUES AND RESOLUTIONS

1. This ROD authorizes the Phase I remedy of limited excavation to eliminate the threat of direct contact from the site. The extent of contamination and the potential for ground water contamination will be determined during the Phase I remedial action. A supplemental ROD for site closure and additional remedial actions, if necessary, will be initiated upon the completion of Phase I.

KEY WORDS

- Direct Contact
- Excavation
- Ground Water Contamination

ISSUES AND RESOLUTIONS

KEY WORDS

2. A decision was made to approve a ROD for this site instead of an NDD because there were no substantive areas for negotiation and the cost of the remedy is relatively low.

. NDD
. ROD

Record of Decision
Remedial Alternative Selection

Site

Pijak Farm, Plumsted Township, New Jersey

Documents Reviewed

I am basing my decision primarily on the following documents which describes the analysis of cost-effectiveness of remedial alternatives for the Pijak Farm site.

- Remedial Investigation and Feasibility Study for the Pijak Farm site, Elson T. Killam Associates, Inc., August 1984
- Staff Summaries and Recommendations
- Responsiveness Summary, September 1984

Description of Selected Remedy

- Removal and off-site disposal of all drums and lab packs at a RCRA 264 facility
- Excavation and off-site disposal of visibly contaminated soil at a RCRA 264 facility
- Pump and remove contaminated ground water, as necessary, during excavation
- Monitor on site wells, annually, for a five year period
- Sediment control during excavation and sampling efforts

Declarations

Consistent with the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), and the National Contingency Plan (40 CFR Part 300), I have determined that the excavation and offsite disposal of visibly contaminated soil and waste. pumping and removal of contaminated groundwater during excavation, and monitoring onsite wells is the cost-effective remedy and provides adequate protection of public health, welfare, and the environment. The State has been consulted and agrees with the proposed remedy.

I have also determined that the action being taken is appropriate when balanced against the availability of Trust Fund monies for use at other sites. In addition, the removal of contaminated waste, soil and groundwater to a secure hazardous waste facility is more cost-effective than other remedial actions, and is necessary to protect public health, welfare, or the environment. The State and EPA will include additional sampling to

determine the potential contact of contamination with the ground water. A Supplemental Record of Decision will be prepared for approval of the future Remedial Actions.

9/30/84
Date

Lee M. Thomas, Assistant Administrator
Office of Solid Waste and
Emergency Response

Summary of Remedial Alternative Selection

Pijak Farm Site
Plumsted, New Jersey

Site Location and Description

The Pijak Farm site is located approximately 2.0 miles northeast of the Town of New Egypt in Plumsted Township, Ocean County, New Jersey. The site is approximately 1,000 feet south of New Egypt-Lakewood Road (County of Route 528) and approximately 1,000 feet west of Fischer Road. It occupies a portion of Lot 22, Block 75 in Plumsted Township. Waste disposal occurred at several locations along the edge of an open field and in an adjacent low-lying wooded area which drains ultimately to Crosswicks Creek. A vicinity map and site location map are presented in Figures 1 and 2.

The area consists of gently rolling farmlands which range in elevation from 115 to 145 feet above mean sea level. The fields are cut by forested and heavily overgrown stream valleys which form a dendritic pattern and range in elevation from 100 to 140 feet above mean sea level. The total area investigated is approximately 87 acres of which approximately 40 acres are woods, stream valleys or swamp lands.

The drainage area for the stream system crossing the site is approximately 0.88 square miles and is situated within the Delaware River Basin. Downstream from the site the stream joins another small stream which flows west into Crosswicks Creek in New Egypt. Several homes are located within one-quarter mile of the site.

The Pijak Farm site is located in the Atlantic Coastal Plain which covers portions of eastern and central New Jersey. This unconsolidated geological formation overlies bedrock comprised of early Paleozoic to Precambrian metamorphic gneiss and schist. The unconsolidated beds generally strike northeast/southwest, although shallower units strike in a more easterly direction. The units dip and thicken toward the southeast at dip angles varying from about 10 feet per mile at the top to approximately 120 feet per mile at the bottom of the unconsolidated sequence. Many of the units vary in composition from where they outcrop to downdip locations.

The Pijak Farm site is in the outcrop area of the Kirkwood Formation, one of the major aquifers in the Coastal Plain sequence. Two lithologic members make up the Kirkwood, an upper unit consisting of light gray to yellow-brown, fine quartz sand and a lower unit consisting of dark brown, fine to very fine sand and silt containing some glauconite. Muscovite, ilmentite and lignite are common minerals to both members. The

Kirkwood Formation, which ranges in thickness from 40 to 100 feet in the outcrop area, has an average dip of 22 feet per mile in the southeastern direction and strikes N 60°E. Downdip, this formation thickens to over 500 feet at the coast. The Kirkwood aquifers are the most heavily developed of the Coastal Plain aquifers in Ocean County.

A gradual formational contact exists between the finer sands of the Kirkwood Formation and the coarser sands of the underlying Manasquan Formation, the target depth for termination of monitor wells in the remedial investigation. Even though both formations have geologic similarities, noticeable differences, such as the larger grain size, increased glauconite content and the fossiliferous and calcareous nature of the sediments, distinguishes the Manasquan from the Kirkwood. Additionally, the Manasquan is generally considered an aquitard even though in localized areas the upper unit of the Manasquan may be more permeable than the Kirkwood.

Beneath the Manasquan Formation are the Vincentown Formation, Hornerstown Sand, Red Bank Sand, Navashink Formation and Mt. Laurel-Wenonah Formation. The Vincentown and Mount Laurel-Wenonah formations are major aquifers in the area.

Site History

Portions of the Pijak Farm site are currently in use as cultivated farmland. The site is relatively flat, however, portions drop off into a marshy, wooded floodplain. It is alleged that between 1963 and 1970, drums and free-flowing liquids were dumped into a natural ditch which traversed the site and were later covered with soil. The deteriorated remains of drums are visible along the bank of the floodplain.

Presently, there are no containment or diversion systems for the waste or for contaminants emanating from the site. The location of this site in the bank of and possibly within an active floodplain makes the hazardous waste particularly susceptable to erosion by flood waters and surface runoff.

The New Jersey Department of Environmental Protection Agency (NJDEP) has performed a limited site investigation of the Pijak Farm site prior to the initiation of a comprehensive Remedial Investigation and Feasibility Study (RI/FS).

Contaminants found at the site include: halogenated hydrocarbons, PCBs, phenolic compounds, and oil sludges.

A stream sample taken adjacent to the site showed a high COD. Ground water samples from the site indicate the presence of a number of contaminants including zinc, 2-chlorophenol, 2,4 dichlorophenol, 4-nitrophenol, di-n-butyl phthalate, fluorene, pyrene, anthracene, and Arochlor 1254.

To date, the Pijak Farm site has had no known documented effects upon the local human population. However, ground water is used as the major source of potable water throughout the area. Leachate breakouts from the ground surface into the adjacent marshy floodplain have been reported.

A Remedial Action Master Plan (RAMP) was completed for the Pijak Farm site in 1982. Subsequently the NJDEP filed a Cooperative Agreement Application with the USEPA to cover the costs to complete a detailed RI/FS for the site. In September 1982, $292,500 of Federal Funds were approved for the Pijak Farm RI/FS.

The State of New Jersey proceeded to procure a consultant to undertake the work necessary to complete the RI/FS. Elson T. Killam Associates was selected as the State's consultant. Work on the RI/FS was initiated in November 1983. A draft RI/FS report was completed in August 1984.

Current Site Status

The investigation program undertaken as part of the remedial investigation phase included the following activities:

1. An electromagnetic induction terrain conductivity survey of the site
2. An emanation flux detection survey
3. Construction and sampling of eleven monitoring wells
4. Excavation of seven test pits and obtainment of four soil and six waste samples
5. Collection of one sediment and three surface-water samples.

The results of these remedial investigation activities indicate that:

- Wastes were disposed of at the site by surface dumping and burial.
- Most waste containers were opened intentionally or have rusted and their contents dispersed;
- Principal contamination on site found in waste containers, underlying soils, a small area containing buried waste and the ground water at monitoring well 2-S;
- Most organic pollutants detected were not priority pollutants; and
- Review of available data on toxicity for these non-priority organic pollutants indicated that the greatest potential for adverse health and environmental effects were found in soil rather than in water.

A more detailed discussion of remedial investigative results is noted below:

Ground Water Samping and Results

All eleven newly constructed monitoring wells were sampled as part of the investigative program. There were no volatile organics, acid extractable organics, pesticides or PCB's detected in any of the ground-water samples. Only two wells, MW-2S and MW-5D, yielded ground water that contained base extractable organics: the latter having just 13 ug/l of 3,7,11-Trilmethyl-(Z,E)-2,6,10 dodecatrien-1-OL, which was identified through the library search. The sample from MW-2S contained 14 base extractable compounds ranging in concentrations from 220 ug/l to 3600 ug/l, and averaging about 1000 ug/l. Included are four priority pollutants: ethylbenzene, 1,2-dichlorobenzene, di-n-butyl phthalate and bis (2-ethylhexyl)-phthalate in concentrations of 940 ug/l, 220 ug/l, 310 ug/l and 320 ug/l, respectively.

The only inorganic compounds found were very low concentrations of mercury (approximately 0.0004 mg/l) and zinc (approximately 0.11 mg/l). These contaminants were detected in all ground water samples.

Surface Water Sampling and Results

The flows of streams on the Pijak Farm site are primarily maintained by the discharge of ground water at the stream channels. As such, surface water throughout the site is the recipient of water first entering the cycle as recharge. Thus, the three surface-water samples are important for defining the water quality at the end-point of its underground migration including the point where the surface water eventually leaves the study area.

The results of the chemical analyses indicate that the surface water at two of the three locations are virtually free of priority pollutants, both organic and inorganic. Sample SW-3, centrally located on the site, contained no priority pollutants and contained only one organic compound 13 ug/l of 1-(1 Methylpropoxy)-2 propanol. The surface water sample at the downstream boundary of the study area, SW-5, also contained only one organic compound, 15 ug/l of toluene which was detected through the base-extraction procedure. The third sample SW-1 which is representative of surface water entering the study area, contained the largest number and concentrations of organic compounds. Again, only base extractable compounds were detected, and these all were identified through the library search including the priority pollutant toluene. Five compounds were identified and ranged in concentrations from 18 ug/l to 56 ug/l. All three samples contained mercury and zinc at concentrations well below drinking water standards.

Test Pit Soil Sampling and Results

Aside from actual waste samples, the four samples obtained at Test Pits 2, 2A, 2B, and 3 contained the highest concentrations of contaminants found on the Pijak Farm site. These samples are considered to be adjacent to the source as they were collected at depths not exceeding 3 feet below grade. Contamination by individual organic compounds ranged from a low of 4 ug/kg to a high of 36,000 ug/kg and generally averaged about 6500 ug/kg. Similarly, individual inorganic compounds ranged from 0.02 ug/g to 280 ug/g with an average of about 9 ug/g. The pesticides 4,4' DDE and 4,4' DDD were detected in Test Pit 2B in concentrations of 7.2 ug/kg and 9.0 ug/kg, respectively. No other pesticides were found in this or the other test pits. Soil from Test Pit 2 was found to contain 2300 ug/kg of PCB-1254; the only detection of a PCB compound in the investigation.

Two important observations are made from the test pit results. First, Test Pit 2 is the only location which showed a variety of volatile organics, two of which are priority pollutants (toluene and ethyl-benzene). Of the three remaining samples, Test Pit 2B was free of volatile organics. Methyloxirane, found at Test Pit 3, an 1,3-oxathiolane, found at Test Pit 2A, were identified through the library search. The second observation is the relatively small number and concentrations of organic compounds on the priority pollutant list, toluene, ethylbenzene, di-m-butyl phthalate and bis (2-ethylhexyl) phthalate were the only compounds detected. With the exception of bis (2-ethylhexyl) phthalate, which was found at Test Pit 3, organic priority pollutants were found only at Test Pit 2.

In summary, Test Pit 2 revealed the most heavily contaminated soil. There is a relatively small number of priority pollutants and volatile organics in the test pit soil samples. Those organics which have been detected and identified with the library search are rarely found at more than one test-pit location. Pesticides and PCB have been detected in shallow soils in the area of Test Pit 2.

Split Spoon Soil Sampling and Results

The soil zone sampled by split-spoon is adjacent to the initial contaminant sources from the shallow soils of the test pits. Shortly after the start of dumping at Pijak Farm, the saturated soils likely retained or adsorbed a portion of the contaminants being carried by the ground water. However, recent sampling indicates that ground water presently has signficantly lower contaminant concentrations than the soil. Therefore, these soils may be acting as secondary sources of contamination of the ground water by the leaching process.

Because of an oversight in the laboratory procedures, the split spoon soil samples from Sites MW-4 and MW-5 were not subjected to preliminary OVA scanning and, as a result, they were not considered for the complete chemical analyses. The

fact that there is low contamination in the ground water sample at these locations does not imply the absence of soil contamination. Ground water and soil samples from MW-1 and MW-2D support this notion. Similarily, low near-background readings from OVA scanning are also not conclusive evidence that no contamination is present. This possibility is illustrated by the sampling results of MW-1. Therefore, since existing data makes extrapolation inconclusive the existence of contaminated soils at Site MW-4 and MW-5 is uncertain. However, because of the proximity of Site MW-4 to a suspected dumping location, the detection of volatile organics by EFD's just downgradient of this area, and the contamination detected in a soil sample from nearby Test Pit 3, the soils at Site MW-4 should be considered as contaminated for the purposes of evaluation of remedial alternatives. There is no visual evidence of waste disposal at MW-5 and nearby EFD's were not considered anomalous. Therefore, the soils at MW-5 were probably not subject to direct contamination but could be affected by mobile contaminants migrating with the ground water.

The split spoon samples were similar to the test pit samples in that of the 8 organic compounds identified, only 1 was a priority pollutant. Methylene chloride was detected in three of four split-spoon samples which were subjected to complete chemical analysis. Also, the highest levels of contamination were found at Site MW-2 near Test Pit 2 and the main buried waste disposal area identified by the EM survey. In general, individual organic compounds were detected in concentrations of from 10 ug/kg to 24,000 ug/kg while the average was on the order of 2,400 ug/kg. Inorganic compounds included on the priroity pollutant list were again found at all locations. These concentrations ranged from 0.011 ug/g to 61 ug/g. None of the split spoon samples contained pesticides or PCB's.

When compared to test pit sampling results the split spoon samples have a larger portion of volatile organics and virtually no acid extractable organics. Also of note is the 400 ug/l of methylene chloride, 1.1 ug/g of chromium and 310 ug/kg to 700 ug/kg of 1-chlorodecane found in a soil sample from MW-1. Not only is this the upgradient well, but the sample was obtained at a depth of 40-42 feet below grade.

Stream Sediment Sampling and Results

One stream sediment sample was obtained where the main stream flows out of the study area. The chemical analysis showed this sample to be similar to the test pit samples but with fewer contaminant species and smaller concentrations. Ethylbenzene was the only organic priority pollutant detected in the sample. Also, the types and proportions of acid and base extractable organic compounds were about the same. The main differences are the generally lower concentration of organics, averaging about 5,500 ug/kg, though the range of values is larger

(15 ug/kg to 52,000 ug/kg). The inorganics are lower, averaging about 2.8 ug/g. Three pesticides on the priority pollutant list were also identified; 4,4'-DDT, 4,4'-DDE and 4,4'-DDD in concn-trations of 8.1 ug/kg, 10 ug/kg and 15 ug/kg, respectively.

Discussion of Remedial Investigation Results

The remedial investigation activity results at the Pijak Farm site indicate that random dumping occurred over the entire wooded area of the site. A major disposal area was found approximately 100 feet south of th stream traversing the site and approximately 700 feet west of Fischer Road.

Of the many compounds which have been identified few are found in more than one sample of a particular sample type, while fewer still are in different types of samples. Though it is expected that some degree of breakdown has occurred in the organic compound found in the shallow soils of the test pits, different compounds were detected in the ground water.

Few of the organics found on-site are in the volatile classification. This implies that either these compounds were not disposed of or that the dumping practices terminated some time ago and most of the volatiles have had time to dissipate.

The majority of the numerous organic compounds detected at the site were identified through the acid or base extraction process. The fact that these processes are required to move the compounds from the soil matrix indicates that, under natural conditions, moving ground water will leach out only minor amounts of these tightly held compounds. The stability of these organic compounds in the sediments is borne out by the relatively large number and concentration of compounds detected in the soil samples while the ground water samples in general contained few organics in relatively low concentrations. However, at MW-2S concentrations of organics in the shallow ground water were greater than concen-trations detected in split spoon samples obtained at the same depth intervals. The detection of relatively stable organics in the saturated soils over the site indicates that at some previous time these compounds were transported by ground water. This would be due to the sporadic nature of dumping and slow rusting of drums which would tend to result in low concentrations of contamination small distances from the source. Over time the soils accumulated contaminants by adsorption from moving ground water.

Of the organic compounds found on-site, it should be noted that few are priority pollutants. This means that most of the compounds used in this evaluation were identified through a library search.

Inorganic compounds were the only contaminants that were common to the various types of samples. The results indicate a general decline in inorganic compounds as water moves further from source contamination areas. These elements might be expected in on-site or downgradient samples considering the concentrations found in soils on-site. However, on-site sources at Pijak Farm cannot be the source of mercury and zinc in the upgradient monitor well, the upstream surface water sample, and the potable wells sampled as part of the Spence Farm study. These concentrations are within the background levels for this area, which tend to be unusually high.

After assessing the priority pollutant and non-priority pollutant data generated during the remedial investigation activities, it can be seen that no surface water or ground water quality criteria are violated as a result of waste disposal at the Pijak site. The principal priority and non-priority organic pollutants are bound in the soil and released from the site as sediment. Therefore, the control objectives are first to limit or eliminate sediment loss and second, to limit or eliminate direct contact. Because of the exotic nature of the non-priority organic contaminants a numerical control objective could not be developed. However, given the relatively low level and low toxicity of the contaminants present, dredging of these sediments is not recommended.

The focus of soil removal is on those species which are priority pollutants or which are listed in Subpart D, Section 3001 of the Resource Conservation and Recovery Act (RCRA). Potential criteria for removal include:

- An order of magnitude above detection limit for individual species using EPA Methods 624 and 625 (detected limit approximately 10 ppb)

- A level of 500 ppb in soil of any single volatile species, based on ten times the NJDEP water quality criteria

- A level of 1 ppm in soil of total priority pollutants and RCRA Section 3001 pollutants ppb level permitted by the NJDEP. The source of contamination appears to be the buried material found in Test Pit 2.

Initial estimates of the extent of soil removal to each criterion can be based on results of remedial investigation soil analyses. The most stringent criterion (ten times detection limit or approximately 100 ppb for individual pollutants) would require excavation and reburial of material at depths ranging from 26 feet (Well No. 9) to 30 feet (Well No. 2) to 3 feet. It is estimated that the resulting volume of excavation would be approximately 98,000 cubic (Test Pit 3) yards, with 10,970 cubic yard for disposal.

For the second approach, based on 500 ppb of any pollutant (ten times the NJDEP criteria), the levels of excavation would be similar, that is, 98,000 CY excavated and 10,970 removed for disposal.

For the third possible criterion, i.e., 1 mg/kg of total RCRA Section 3001 pollutants, the extent of removal would be much reduced based on data resulting from the remedial investigation. Only the monitoring Well No. 2 soil sample (30' depth) showed total RCRA pollutants in excess of this criterion. Therefore, approximately 5,500 cubic yards would require excavation and 370 cubic yards would require removal under this criterion.

The results of a ground water sample taken at MW-2S show the well to be contaminated with volatile organic priority pollutants greater than 100 ppb. Nor can on-site sources account for the organics found in the upstream surface-water sample or the presence of methylene chloride and chromium in a deep split-spoon sample of the upgradient monitor well. Possible explanations might include off-site dumping areas, a flaw in sampling and/or anlaysis, or, in the case of mercury and zinc, their natural occurrences or the application of agricultural substances containing these elements.

Alternatives Evaluation

After assessing the all data generated during the remedial investigation activities, it can be seen that surface water quality is not violated as a results of waste disposal at the Pijak Farm site. However, a violation of ground water quality criteria has occurred. The ground water contamination found in MW-S2 exceed ground water quality standards.

The principal priority and non-priority organic pollutants are bound in soil and released from the site as sediment or found in one area of burned, buried waste. Therefore, the control objectives are first, to limit or eliminate sediment loss, second, to limit or eliminate direct contact, and third, to remove the buried material and contaminated ground water. Because of the exotic nature of the non-priority organic contamination, no numerical control objective could be developed. However, given the relatively low level and low toxicity of the species present, dredging of these sediments should not be necessary.

The initial screening of alternatives can be done based on cost, effectiveness, and acceptable engineering practice. The most significant pathways with the potential for adverse impacts on public health and the environment are to limit or eliminate pollutant migration and direct contact. The candidate remedial actions identified in the National Contingency Plan are presented in Table 2.

The screening of remedial alternatives indicates that remedial action will be necessary to mitigate the threat to public health, welfare and the environment. Source control action which would lessen the migration of stream sediment and measures to eliminate direct contact will also be required. For this reason the "No Action" alternative was not considered in the detailed Evaluation of Alternatives.

SEE INSERT A.

The following remedial action alterantives were developed for a more detailed analysis of effectiveness and cost measure.

Alternative 1 - Waste, soil and groundwater removal, dam and pond for sediment control, groundwater removal, fencing and direct access control and groundwater monitoring.

Alternative 2 - Waste, soil and groundwater removal, berms along stream for sediment control, groundwater removal, fencing and groundwater monitoring.

Alternative 3 - Waste, soil and groundwater removal, berms along stream and site perimeter, groundwater removal, fencing and ground water monitoring.

Alternative 4 - Waste, soil and groundwater removal, site regrading and surface restoration, groundwater removal, berm along site perimeter, and ground water monitoring.

Alternative 5 - Removal of all waste and contaminated soil, ground water removal and site restoration.

Alternative 6 - Construction of on-site landfill to RCRA and NJDEP landfill specifications, ground water removal, site restoration, and ground water monitoring.

The cost-effective alternative is defined as the lowest cost alternative that is technologically feasible and reliable and which effectively mitigates damage to and provides adequate protection to public health, welfare and the environment.

The following evaluation of the six remedial action alternatives will consider their present worth cost as well as their effectiveness in controlling direct contact and sediment migration.

INSERT AT A.

The alternative of closing the site in accordance with RCRA, without the removal of any waste off-site for disposal, was eliminated during the initial screening of alternatives. This alternative did not significantly lessen the migration of contamination through ground water already in contact with source materials. In addition, the scattered disposal of drums and lab packs would require the extensive capping of the site. However, the discrete removal of the drums, lab packs, and visibly contaminated soils would be significantly lower in cost, as well as more environmentally secure, and will facilitate capping the remaining contaminated soils.

INITIALS

Alternative #1

This alternative would include removal of contaminated waste, soil and ground water from the site and the construction of a dam across the stream flowing through the site. The proposed dam would be located below the perimeter of the site approximately 200 feet upstream of the confluence of the stream flowing through the site and the Stony Ford Brook, as shown in Figure 3.

The total drainage area of this stream is approximately 190 acres. Designing the basins to contain a 100 year storm event would require the construction of a dam 175 feet wide and approximately 8 feet high. The pond created during a 100 year storm event would have a volume of approximately 517,000 ft^3 and depth of approximately 6 feet at the dam. The basin will have an emergency overflow riser pipe and will be dewatered by the use of subsurface drains.

The effects of this dam will only be realized during storm events when a pond will be created as a result of the excess of inflow entering the basin over the capacity of the subsurface drain. The area behind the dam will be a relatively calm area where the sediment transported by the stream will slowly drain. Preliminary calculations indicate volume of approximately 38,000 ft^3 of soil will be removed annually. Therefore, the periodic excavation of this sediment will be required. The sediment yield of 38,000 ft^3 will not all be delivered to the dam. For sandy soils, approximately 19 percent of the sediment yeild will occur at the dam, with the remainder being deposited upstream of the pond area. Therefore, the annual sediment yield will be approximately 7,200 ft^3, or 270 CY. The area behind the dam is over eight (8) acres, so the sediment yield will require approximately 50 years to fill one foot. Removal of sediment is recommended every 15 years.

Alternative #2

This alternative includes the removal of contaminated waste, soil and groundwater from the site as well as the construction of berms along the banks of the stream flowing through the site. These berms would prevent the surface runoff passing through the site from carrying contaminated soil into the stream. The area upgradient of the berm will be so graded that the surface runoff will be directed towards a sediment basin where the contaminated soil will settle out.

Approximately 3800 linear feet of berms would be required to isolate the stream as it flows through the site as shown in Figure 4. The total drainage area tributary to and including the site is aproximately 55 acres. The berm on the south bank would have tributary to it a drainage area of approximately 15 acres while the berm on the north bank would have approximately 40 tributary acres. Designing the respective basins (north and

south side) to withhold a 100 year storm event would require basins with volumes of approximately 90,000 ft^3 and 22,000 ft^3 respectively. Each basin would be designed with an emergency overflow riser pipe and will be dewatered by the use of subsurface drains.

The effects of the berms will be to prevent the contaminated soil from entering the stream and leaving the site. Preliminary calculations indicate that the basins on the north side of the stream will remove annually approximately 1,900 ft^3 of soil. The south side basin will annually remove approximately 25 ft^3 of soil. Excavation of this sediment every 15 years is recommended.

Alternative #3

This alternative includes the removal of contaminated waste, soil and ground water from the site as well as the construction of berms along the backs of the stream and along the upland perimeter of the site shown in Figure 5.

The addition of the perimeter berm would prevent upland runoff from flowing over the site, by directing it to a point further downstream. This alternative would require approximately 2200 feet of smaller sized berms to isolate the site. This is in addition to the approximately 3800 linear feet of berms required to isolate the stream as it flows through the site. Therefore, the total drainage area tributary to the site would be greatly reduced. The north side berm would have a drainage area of approximately 10 acres. The south berm would have a drainage area of approximately 15 acres. The respective basins required to withhold a 100 year storm event would have volumes of approximately 21,000 ft^3 and 22,000 ft^3. Each basin would be designed with an emergency overflow riser and will be dewatered by the use of subsurface drains. With the construction of a perimeter berm, there is a reduction in size required for the sediment basins. Similarly, the amount of sediment removed prior to entering the stream is also reduced. Preliminary calculations indicate that the basin on the north side of the stream will remove annually approximately 15 ft^3 of soil. The south side basin will remove approximately 25 ft^3 of soil annually. With this small quantity, removal of sediment should not be required over the thirty year planning period.

Alternative #4

This alternative involves the removal of contaminated waste, soil and ground water from the site as well as construction of a temporary dam, regrading of areas of high slope and covering with native material, construction of a site perimeter berm for runoff control and the restoration of vegetation.

The greatest source of contaminated soil is the embankment area marking the transition from upland to wetland areas. The slope of this embankment area ranges from approximately 1.5 to 1 to approximately 3 to 1. To regrade the slope to 4 to 1 and cover with one foot of contaminated material will require approximately 6 cubic yards of excavation per linear foot of slope. In addition, the slopes will require clearing and grubbing (approximately 3.4 acres) before regrading and will require surface restoration after regrading for the area shown in Figure 6. To further minimize erosion, the site perimeter berm described in Alternative #3 will be incorporated. The final stage of construction will be the removal of the temporary sediment control dam.

Alternative #5

This alternative would involve removal of contaminated waste, soil and groundwater from the site. Removal of the top two feet of soil with proper regrading and revegetation would remove the potential for direct contact and potential for soil loss and consequent sediment migration.

This alternative would require the construction of a temporary dam for the control of sediment loss during construction. The area affected by removal and restoration is estimated to be 3.4 acres with the volume of soil to be removed being 10,970 cubic yards.

Alternative #6

This alternative involves the removal of contaminated ground water from the site. Contaminated waste and soil will be excavated and placed in an on-site RCRA quality controlled landfill. This landfill will be constructed in an upland area.

In addition to RCRA criteria, NJDEP landfill criteria for new construction were used in development of the design. These additional criteria include double, rather than single, lining and specifications for surface cover and drainage layers. The RCRA landfill configuration is shown in Figure 7 with the disturbed area and tentative landfill locations shown in Figure 8. The landfill design includes site regrading, a double bottom layer for leachate control, surface sealing using a clay cap and new monitoring wells.

Excavation and removal of contaminated surface and subsurface soils will require excavating approximately 75,600 CY of soil, of which 8,890 CY would be placed in the landfill in addition to the 4000 CY to be removed. This excavation will require well pointing to lower the groundwater sufficiently for removal of contaminated materials at an average depth of 15 feet below grade. For sediment control the temporary dam would also be required.

Community Relations

A public meeting was held by the NJDEP on February 7. 1984. to discuss the initiation of a Remedial Investigation/Feasibility Study (RI/FS) for the Pijak Farm site. Notification of the meeting was accomplished through press releases sent to all newspapers listed in the Pijak Farm Community Relations Plan and mailings to all parties listed in the "Contacts" section of the plan. An information package. including an agenda. fact sheet. overview of the Community Relations Program at Superfund sites. and the steps involved in a major hazardous waste site cleanup. was given to all attendees at the beginning of the meeting. The meeting was attended by approximately 30 people in addition to local Township officials and NJDEP representatives. After the initial presentation by the contractor. Elson T. Killam. the meeting was opened for public discussion. There were four questions asked by citizens with regard to testing of the ground water. The state officials responded to these inquiries.

A second public meeting was held by NJDEP on August 16. 1984. to discuss the results of the RI/FS. An information package including the agenda and fact sheet were provided to the approximately 30 people who attended. The contractor outlined the objectives. scope of work, results and conclusion of the RI/FS. Six alternatives were discussed. The contractor's recommended alternative included: removal of drums, lab packs and contaminated soil. site regrading and surface restoration and berming the perimeter of the site. Numerous questions were asked by the public regarding the proposed remedial alternative. The State officials were able to respond adquately to all concerns raised by the public.

The Remedial Investigation/Feasibility Study was available for public review and comment, beginning on August 17. at three locations the Ocean County Library in Toms River. the Plumsted Township Municipal Building. and the NJDEP's Hazardous Site Mitigation Administration in Trenton. There was one letter received prior to the conclusion of the twenty one day comment period.

A letter was received from Mr. Edward C. Larid. Esq. attorney for Morton-Thiokol. This letter included comments concerning the technical feasibility and detailed implementation of the various facets of the recommended alternative. The comments. that are directly related to the first phase of the recommended remedial alternative. have been considered in this Record of Decision document and the NJDEP's response is included in the responsiveness summary.

Consistency With Other Environmental Laws

The final recommended remedial alternative for Pijak Farm will require the removal of containerized waste and visibly contaminated soil. These materials will be manifested for

transport from the site to a secure facility in accordance with RCRA and TSCA requirements.

The benefits of reducing direct contact of the residual contaminants and the migration of these contaminants into the stream for outweigh the minimal impacts on the floodplain. The NJDEP Bureau of Floodplain Management will require the incorporation of specific environmental specifications into the cleanup plan to minimize the impacts on the floodplain. The cleanup contractor will be required to obtain a Stream Encroachment Permit from the NJDEP prior to the initiation of any work in the floodplain area. The floodplain management assessment is inclused as Attachment I.

Enforcement

The State of New Jersey and EPA have identified Morton-Thiokol, Inc., and Dayton Hopkins (former property owner) as potential responsible parties (PRP's). Notice letters were sent by the State to Thiokol on March 18, 1982. This resulted in a meeting with Thiokol of July 7, 1982. to discuss its role in undertaking the site cleanup.

Further correspondence resulted in Thiokol submitting two proposals for conducting a modified RI/FS. These proposals were rejected by EPA on January 16, 1983. A second Notice Letter was sent to Thiokol on March 18, 1983 indicating the State would be responsible to perform the RI/FS.

The State of New Jersey and EPA Region II have designated this site a State enforcement lead. Currently, the State of New Jersey is negotiating an Administrative Consent Order with Morton-Thiokol, Inc. for the clean up of this site. There will be a negotiation period of no greater than sixty (60) days from the signing of the ROD. The recommended remedial actions included in this Record of Decision will be incorporated by the State into the Administrative Consent Order. If New Jersey is not successful in these negotiations EPA will likely issue a §106 Order for the selected remedy and later pursue a Cost Recovery Action against Morton-Thiokol.

Recommended Alternative

According to 40CFR Part 300.68 (j), cost-effectiveness is described as the lowest cost alternative that is technically feasible and reliable and which effectively mitigates and minimizes damages to and provides adequate protection of public health, welfare and the environment. A cost comparison of remedial alternatives is presented in Table 3. The evaluation of the six remedial alternatives leads to the conclusion that Alternative #4 is the most cost-effective.

Of the remaining alternatives. the initial three were all found to have slightly higher present worth cost. In addition. operation and maintenance costs were significantly greater for all three alternatives. The permanent loss of forest and wetland areas are common to all these activities. Furthermore, contamination would remain on site in the surface water sediment for these alternatives.

Alternatives 5 and 6 would result in the permanent loss of forest and wetland areas. These two alternative were also far more costly than the recommended alternative.

The components of Alternative #4 are technically feasible and reliable and when combined. provide adequate protection of public health, welfare and the environment. The removal of containerized wastes and contaminated ground water and visibly contaminated soils to a secure hazardous waste management facility is a reliable remedial measure. The regrading of the site in conjunction with placing clean fill will effectively control direct contact with residual contaminants. The construction of a temporary dam during excavation activities will eliminate the off-site migration of contaminants. The monitoring of existing on-site wells for a period of five years after the completion of the remedial action will evaluate for the possible migration of contaminants from the site, thereby, ensuring the effectiveness of the remedial action.

The Agency and the State of New Jersey have decided to proceed with the recommended alternative as a multiphase remedial action. Phase I will consist of : The excavation of surface waste material and visibly contaminated soil; the transportation and off-site disposal of the excavated material; dewatering during excavation and disposal of contaminated aqueous materials generated; the monitoring of ground water for a five-year period: and further sampling and analysis of soil, stream sediment and ground water in the areas of the excavation. The additional sampling will be conducted to establish the design criteria for the next phase of the remedial action. Sediment control measures will be taken during excavation and sampling efforts. Based on the results of the sampling and analysis effort, Phase II will consist of: site regrading and closure; ground water monitoring; and if necessary, additional excavation of contaminated soils and/or sediments and off-site disposal of the excavated materials, and, the off-site removal, treatment and disposal of contaminated ground water.

The following listed figures respresent a cost estimate for the proposed actions. Cost sharing for project implementation is 90% Federal and 10% State on capital costs and the first year of O&M monitoring costs. The remaining four years of monitoring costs will be borne by the State of New Jersey.

Cost Summary for Recommended Remedial Alternative #4

Remedial Measure Component	Capital Cost	Present Worth of O&M	Total Cost Present Worth
Waste Removal & Disposal	$1,737,750	---	$1,737,750
Ground water Monitoring	---	53,600	53,600
Sampling and Analysis	225,000		225,000
TOTAL COST	$1,962,750	$53,600	$2,016,133

Operation and Maintenance

Upon completion of all remedial actions, monitoring of the site will be necessary to evaluate the migration of any contaminants into the local groundwater.

Future Actions

Schedule	Date
- Final Record of Decision	September 1984
- Continue negotiation with Morton-Thiokol	October-November 1984
- Amend Cooperative Agreement (if necessary)	December 1984
- Initiate Design (if necessary)	February 1985
- Complete Design (if necessary)	August 1985

PIJAK FARM - VICINITY MAP

FIGURE 1

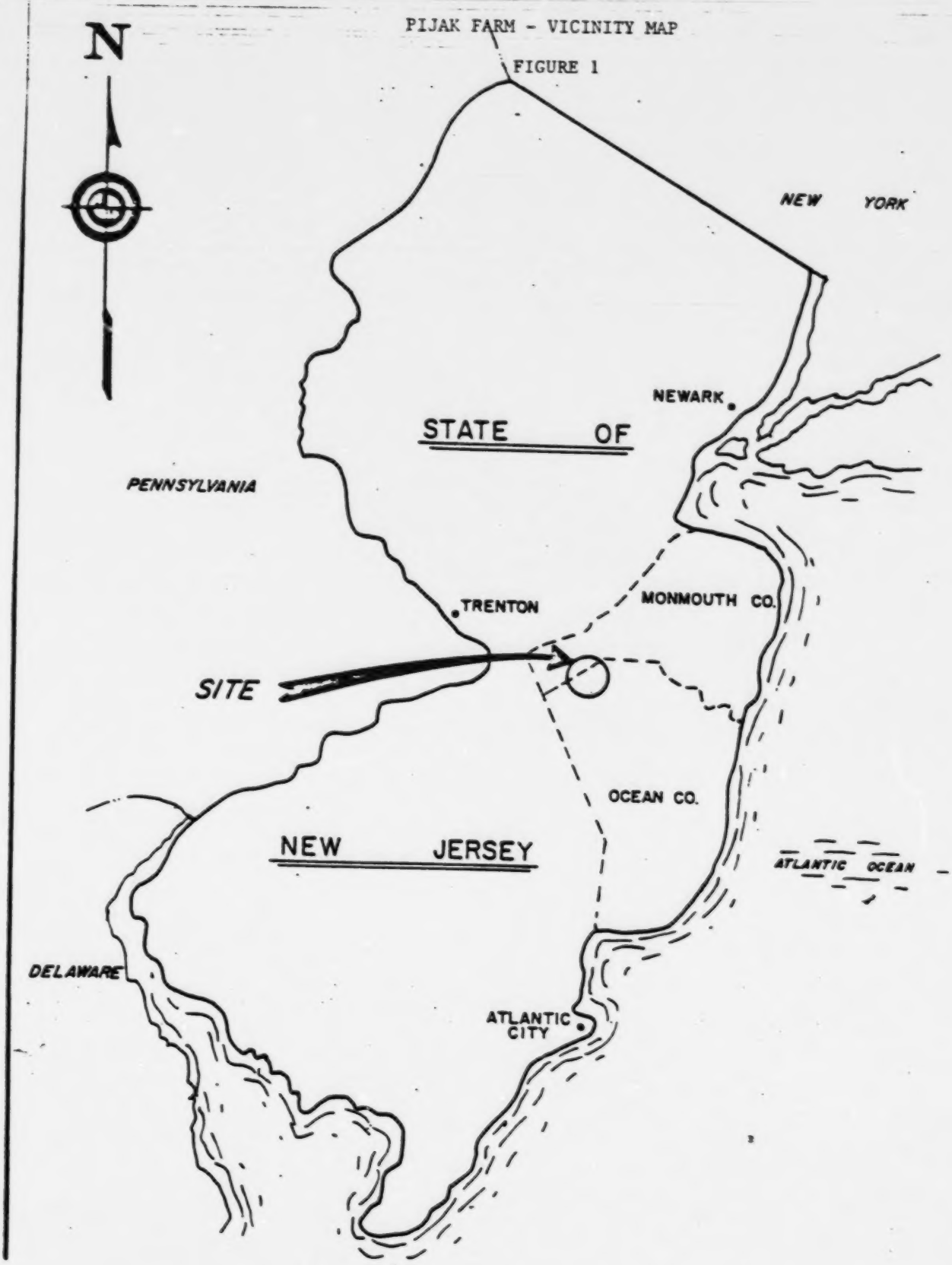
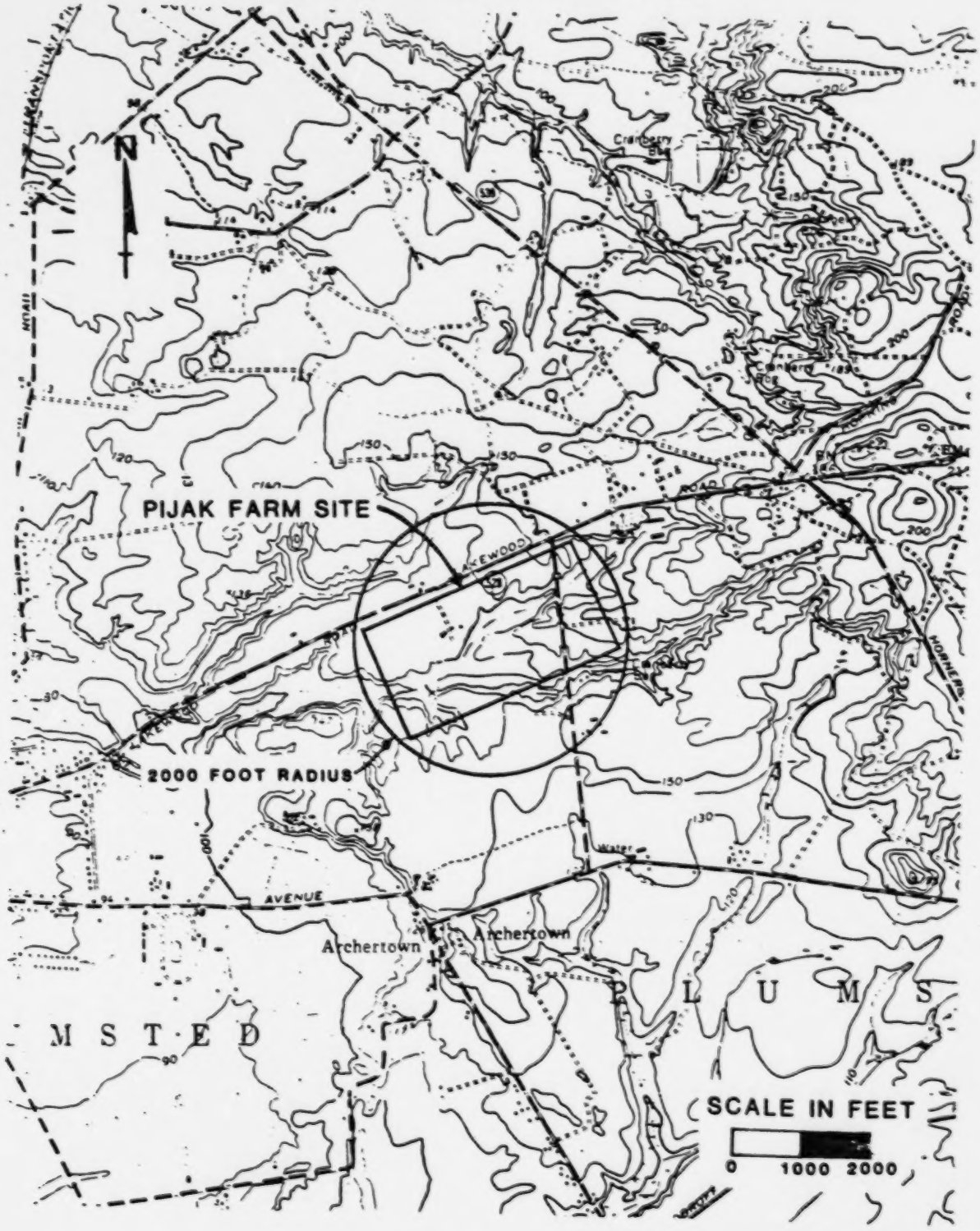


FIGURE 2

PIJAK FARM
NEW EGYPT, NEW JERSEY

REGIONAL SITE LOCATION MAP



LEGGETTE, BRASHEARS & GRAHAM, INC.

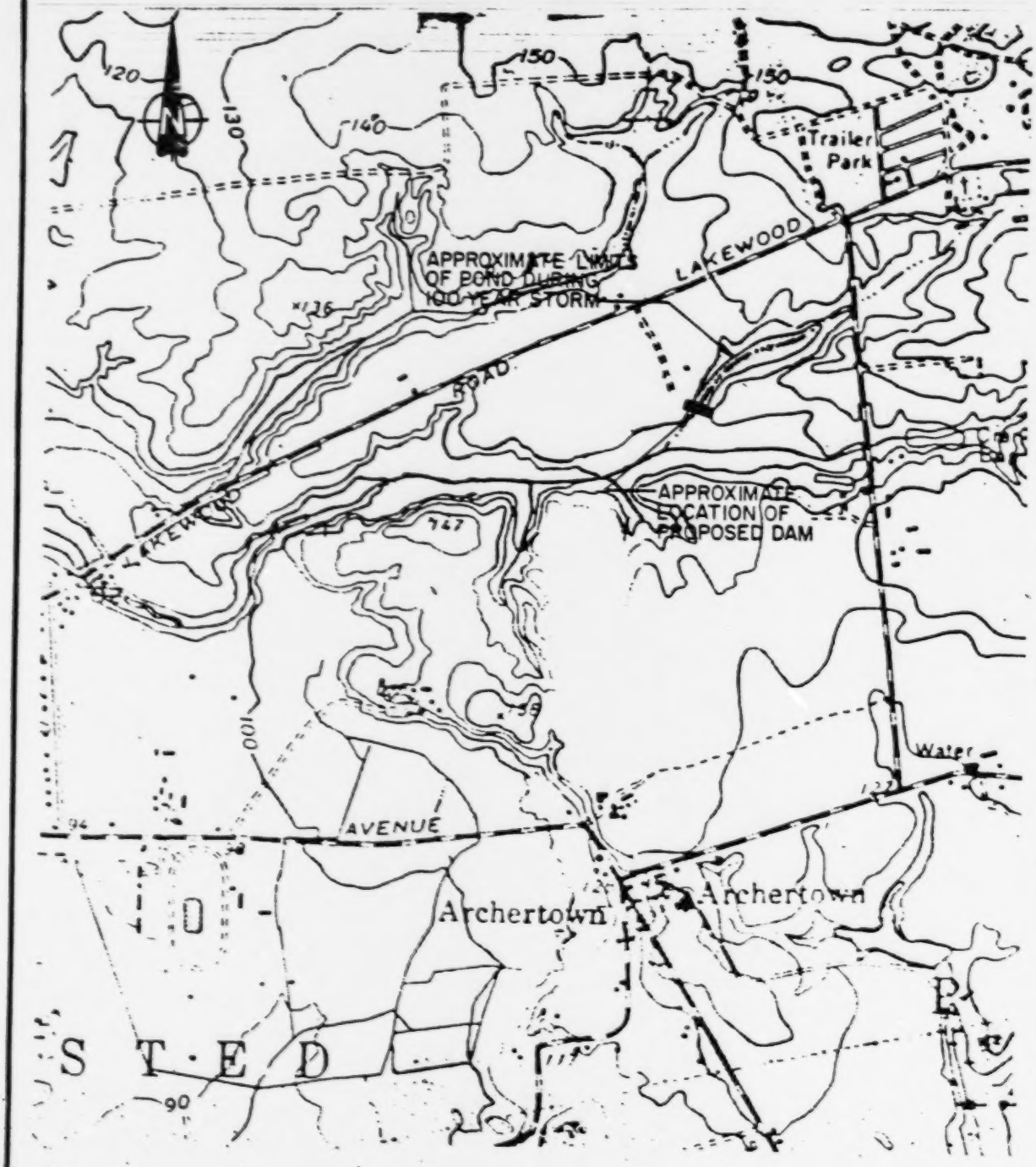


FIGURE 3 - Illustration of Alternative #1

SCALE: 1" = 1,200'±
SOURCE: U.S.G.S. TOPO MAPS

PIJAK FARM
PLUMSTED TOWNSHIP, NEW JERSEY
DAMMING WITH STREAM PONDING

Elson T. Killam Associates, Inc.
Environmental and Hydraulic Engineers
27 Bleeker Street Millburn New Jersey 07041

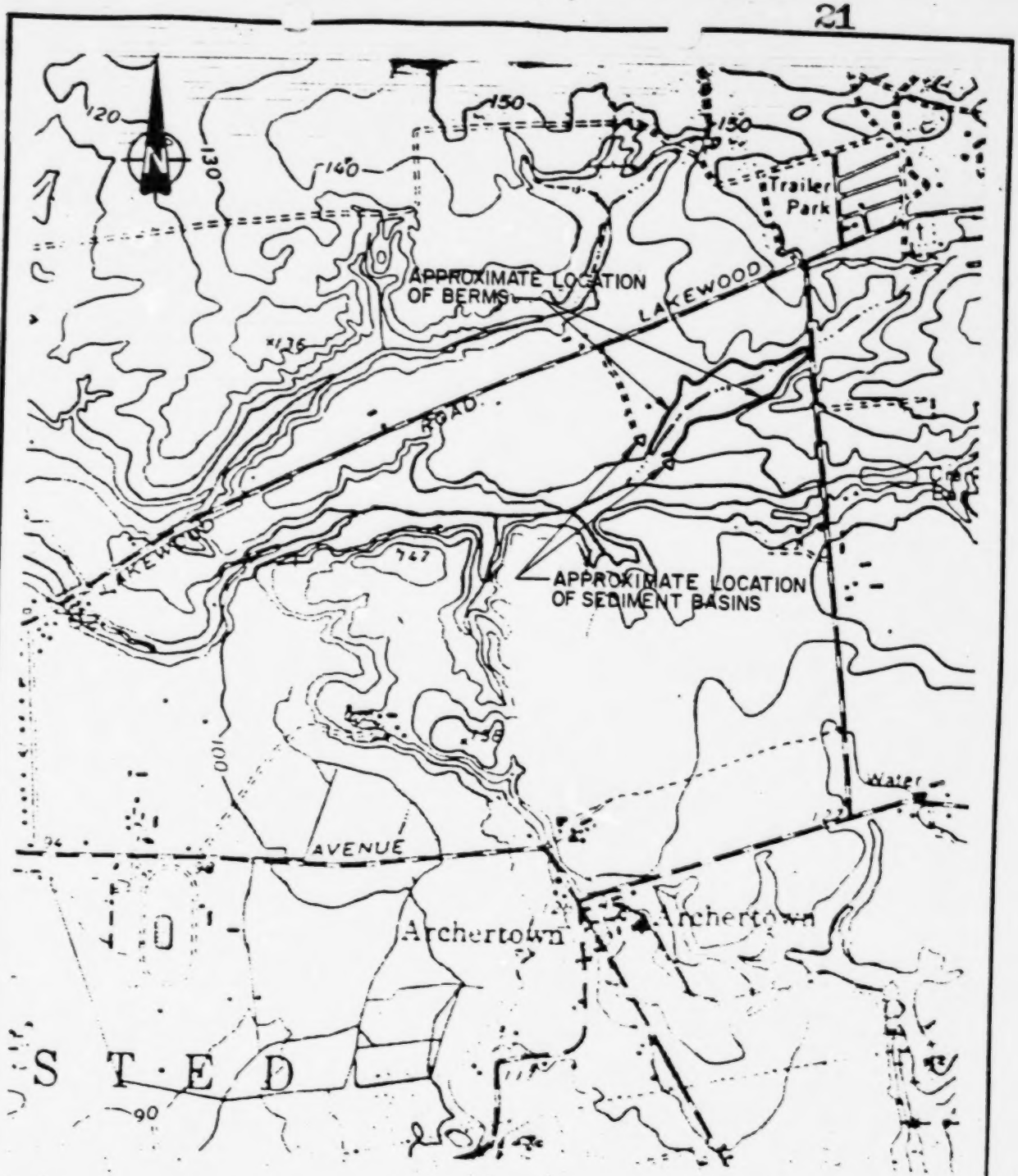


FIGURE 4 - Illustration of Alternative #2

SCALE: 1" = 1,200'±
SOURCE: U.S.G.S. TOPO MAPS

PUAK FARM
PLUMSTED TOWNSHIP, NEW JERSEY

BERMS ALONG STREAM

Elson T. Killam Associates, Inc.
Environmental and Hydraulic Engineers
27 Bleeker Street Millburn New Jersey 07041

Reproduced from best available copy.

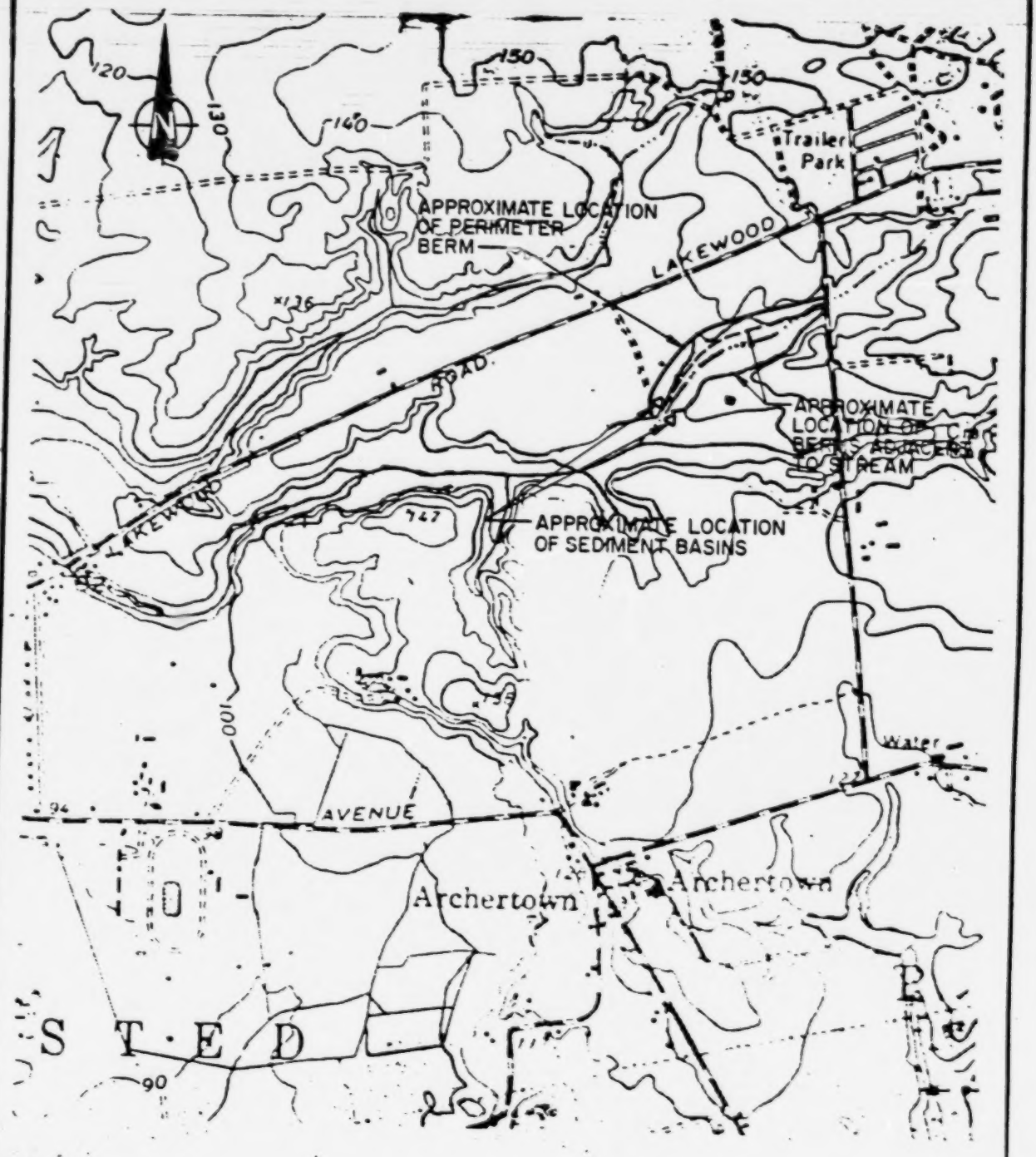


FIGURE 5 - Illustration of Alternative #3

SCALE: 1" = 1,200'±
SOURCE: U.S.G.S. TOPO MAPS

PIJAK FARM
PLUMSTED TOWNSHIP, NEW JERSEY
PERIMETER BERMS

Elson T. Killam Associates, Inc.
Environmental and Hydraulic Engineers
27 Beaver Street Millburn New Jersey 07041

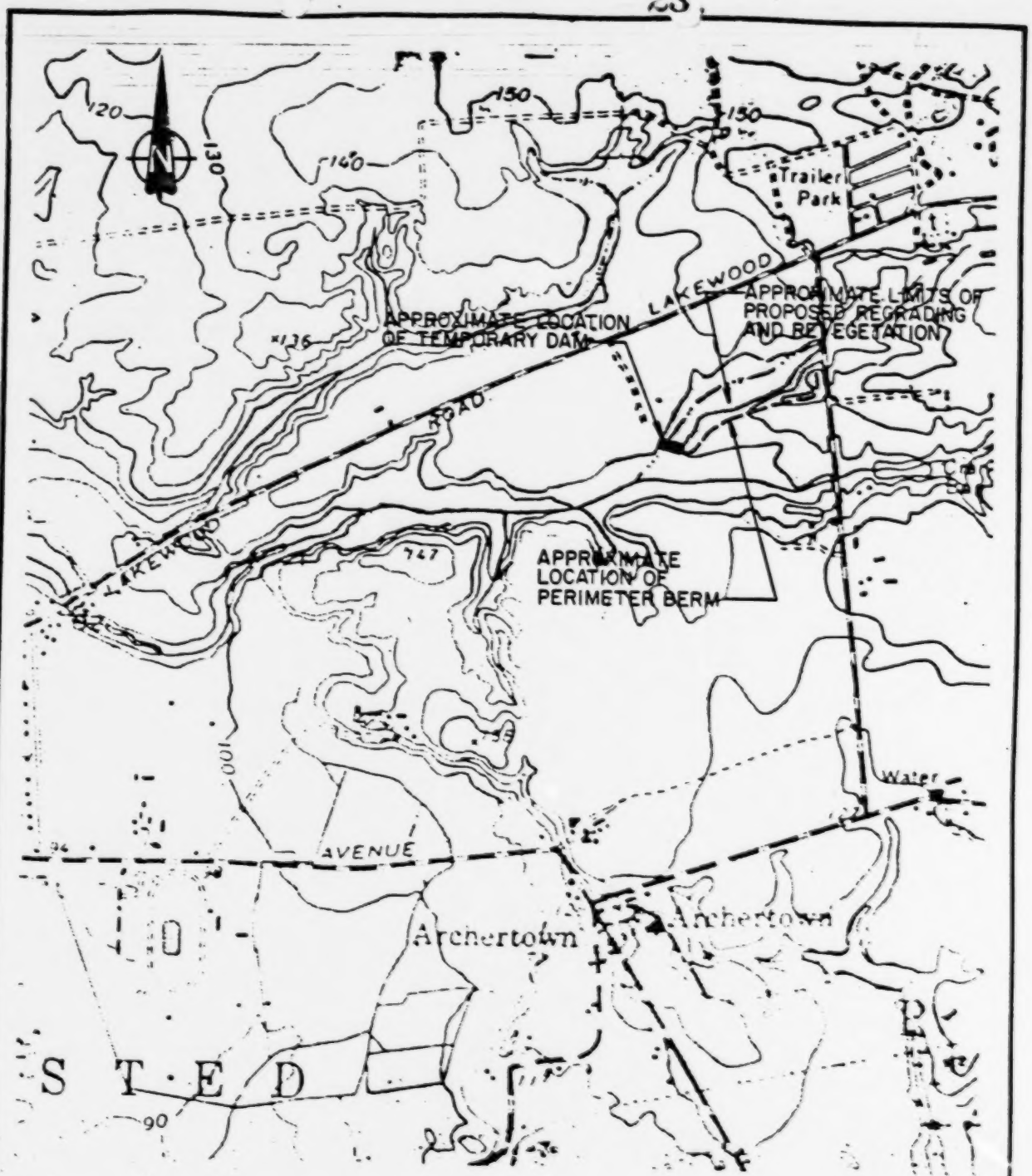


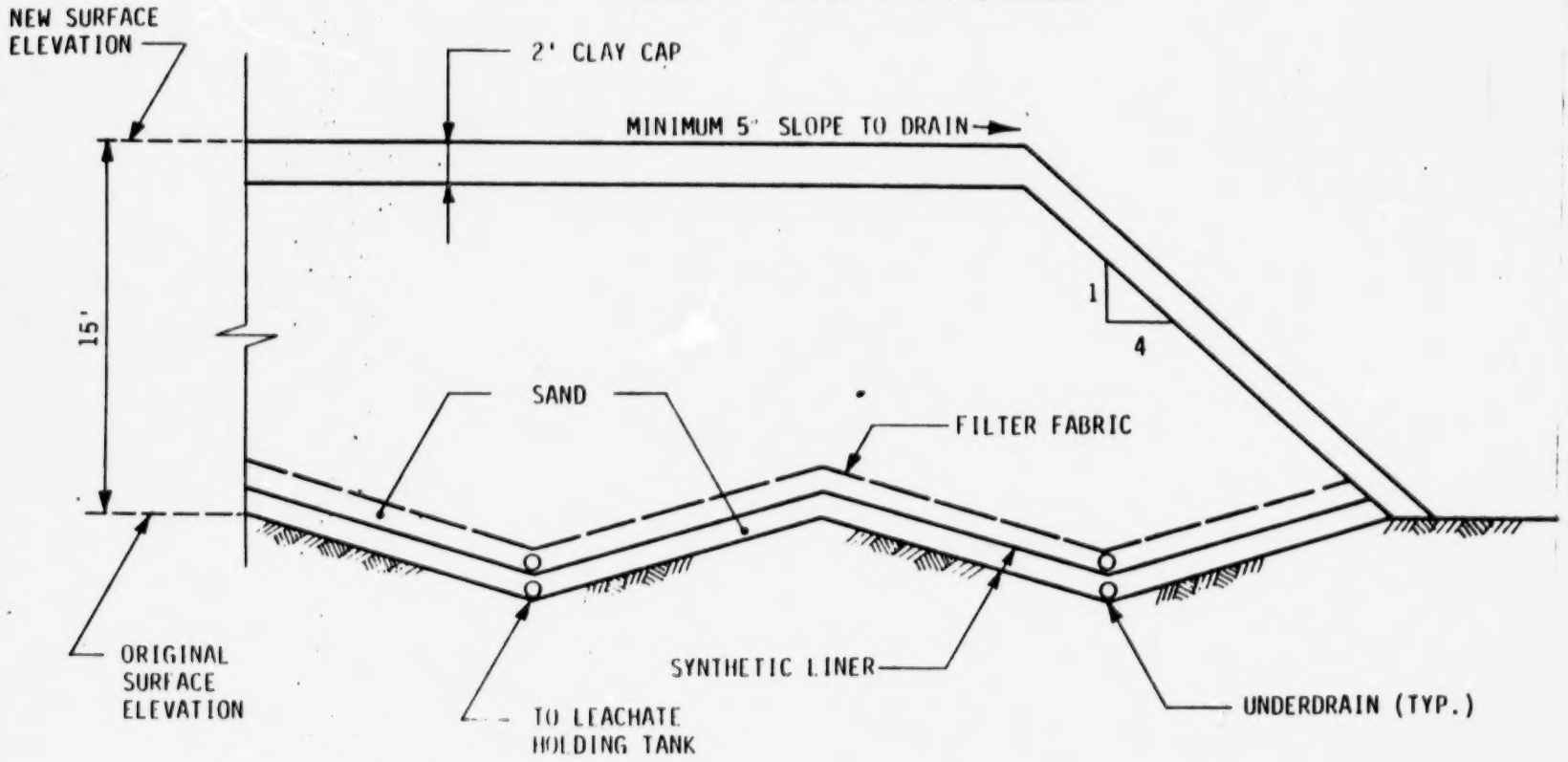
FIGURE 6 - Illustration of Alternative #4

SCALE: 1" = 1,200'±
SOURCE: U.S.G.S. TOPO MAP

PIJAK FARM
PLUMSTED TOWNSHIP, NEW JERSEY
SITE REGRADING
& RESTORATION

Elson T. Killam Associates, Inc.
Environmental and Hydraulic Engineers
27 Bleeker Street Millburn New Jersey 07041

FIGURE 7 - Sketch of RCRA Landfill



NOT TO SCALE

PIJAK FARM
PLUMSTED TOWNSHIP, NEW JERSEY

ON-SITE
SECURE LANDFILL

Elson T. Killam Associates, Inc.
Environmental and Hydraulic Engineers
27 Bleeker Street Millburn New Jersey 07041

OGILVIE PRESS

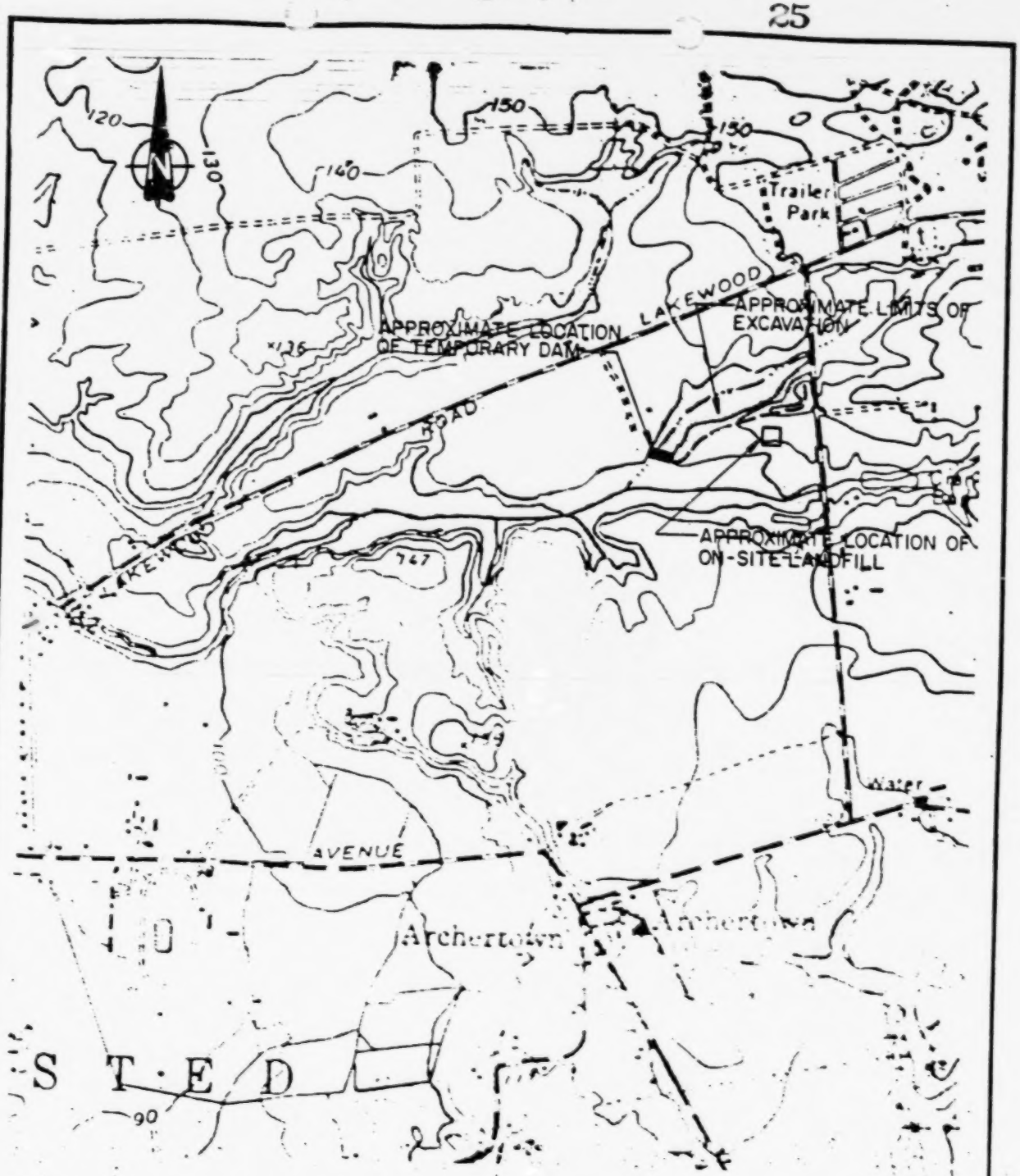


FIGURE 8 - Illustration of Alternative #6

SCALE: 1" = 1,200'±
SOURCE: U.S.G.S. TOPO MAP

PIJAK FARM
PLUMSTED TOWNSHIP, NEW JERSEY
EXCAVATION AND ON SITE LANDFILL

Elson T. Killam Associates, Inc.
Environmental and Hydraulic Engineers
27 Bleeker Street Millburn New Jersey 07041

Reproduced from best available copy.

Table 1
Summary of On-Site Waste Material

Estimate of Drummed Material

Site	#Drums	Drums Intact
TP 2A	50	20
TP 4B	10	5
TP 5	4	2
Scattered	50	0
	114	27

Labortary Packs:

Site	Number
TP 2	400

Buried Material

Site	Quantity
TP 2	4000 CY

TABLE 2
Screening of Altetnatives

Remedial Action	Need For Action?	Acceptable Cost?	Acceptable Effectiveness?	Acceptable Engineering Practice?
I. Emissions Control				
A. Air Emissions Control				
1. Pipe Vents	N			
2. Trench Vents	N			
3. Gas Barriers	N			
4. Gas Collection	N			
5. Overpacking	N			
B. Surface Water Controls				
1. Surface Seals	Y	N	Y	Y
2. Diversion/Collection				
a. Dikes & Berns	Y	Y	Y	Y
b. Ditching	Y	Y	Y	Y
c. Chutes	Y	Y	Y	Y
d. Levees	Y	Y	Y	Y
e. Seepage Basins	Y	Y	Y	Y
f. Sediment Basins	Y	Y	Y	Y
g. Terracing	Y	Y	Y	Y
C. Groundwater Controls				
1. Impermeable Barriers	N			
2. Permeable Treatment	N			
3. GW Pumping	Y	Y	Y	Y
4. Leachate Control	N			
D. Contaminated Sewer Lines	N			

8

TABLE 2

PIJAK FARM

Remedial Action	Need For Action?	Acceptable Cost?	Acceptable Effectiveness?	Acceptable Engineering Practice
II. On Site Treatment				
A. Direct Treatment				
1. Biological	N			
2. Chemical	N			
3. Physical	N			
B. Contam. Soil/Sediment				
1. Incineration	Y	N	Y	Y
2. Wet Air Oxidation	Y	N	Y	Y
3. Solidification	N			
4. Encapsulation	Y	Y	Y	Y
5. In-Situ Treatment	N			
III. Other Control Technology				
A. Removal for Off-Site Treatment or Disposal	Y	Y	Y	Y
B. Provision of Alternative Water Supply	N			
C. Relocation	N			
D. Other				
1. Securing Site	Y	Y	Y	Y
2. Monitoring				
a. Groundwater	Y	Y	Y	Y
b. Surface Water	Y	Y	Y	Y
C. Air	N			

TABLE 3

COMPARISON OF ALTERNATIVES
PIJAK FARM

Alternative	Present Worth Costs			Control Objective - Soils	Sediment Control	Effectiveness for Groundwater Control	Access Control	Adverse Environmental Effects
	Capital	O&M	Total					
1. Permanent Dam	$1,942,140	$167,390	$2,109,530	1 ppm	LT 100%	LT 100%	LT 100%	Permanent Loss of Forrest & Wetland, Contaminated Sediment On-Site
2. Berm along Stream	$2,045,720	$130,620	$2,176,340	1 ppm	LT 100%	LT 100%	LT 100%	Permanent Loss of Forest & Wetland, Contaminated Sediment On-Site
3. Berm along Stream & Perimeter	$2,022,570	$108,890	$2,131,460	1ppm	LT 100%	LT 100%	LT 100%	Permanent Loss of Forest & Wetland, Contaminated Sediment On-Site
4. Regrading & Restoration	$1,976,560	$64,730	$2,041,290	1ppm	100%	LT 100%	LT 100%	Temporary Loss of Wetland
5. Complete Removal & Restoration	$7,291,570	--	$7,291,570	100 ppb	100%	100%	100%	Permanent Loss of Forest & Wetland, Groundwater Movement
6. On-Site Landfill	$2,659,830	$310,350	$2,970,180	100 ppb	100%	100%	100%	Permanent Loss of Forest & Wetland, Groundwater Movement

Page retyped for NTIS - June 11, 1985

ATTACHMENT 1

PIJAK FARM SITE
NEW JERSEY

FLOOD PLAIN MANAGEMENT ASSESSMENT

I. Purpose

The purpose of this addendum is to:

1. Review Executive Order No. 11988, May 1977, 42 F.R. 26951 entitled Floodplain Management;

2. Review applicable status referred to in the Executive Order as required;

3. Review the proposed remnant site contaminant option as it relates to the floodplain of the Hudson River;

4. Summarize the review and describe any technical requirements necessary to comply with (1) and (2) above.

II. Introduction

A Remedial Investigation/Feasibility Study (RI/FS) was prepared by Elson T. Killam Associates, for the New Jersey Department of Environmental Protection (NJDEP), to determine the extent of contamination on-site and to evaluate remedial alternatives. The Pijak Farm site is located in Plumsted Township, south of Route 528 and approximately 1000 feet west of Fischer Road. Waste disposal occurred at several locations along the edge of an open field and in an adjacent low-lying wooded area which drains to a small stream, and ultimately to Crosswicks Creek.

The random dumping of hazardous wastes via drums and lab packs has resulted in numerous areas of contamination. Investigative activities indicated a majority of the drums dumped at the site were intentionally opened or rusted through and their contents dispersed. This has resulted in many areas of contamination surface soil along the stream banks.

Virtually all of the time the stream flow is below the areas of soil contamination. However, during times of high flow scouring of the stream bank can result in the migration of contaminants into the waterway. Also, precipitation runoff can carry the contaminants from the low-lying areas into the stream. Figure 1 shows the general location of the remedial activity. Currently the slope in this area of the stream ranges from 1.5 to 1 to 3 to 1.

A Flood Insurance Study for Plumsted Township was completed in March 1981, and the Flood Insurance Rate Maps were published in March 1982. Based on this study it appears that the low-lying areas of the Pijak Farm site are within the 100 year floodplain. However, it should be noted that the actual location of the 100 year flood was not determined from the flood insurance study.

III. Proposed Site Remedial Action

The selected remedial action for the Pijak Farm site includes the removal of drummed material and lab packs and adjacent contaminated soil. After additional samples are taken to determine the extent of soil contamination, clean fill material will be placed in area where removals have occurred. The clean soil will be graded to its original condition prior to the removal action.

IV. Flood Plain Regulatory Requirements

In accordance with Executive Order 11988, Floodplain Management, an applicable executive agency shall provide leadership and shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains. In addition, it is necessary to evaluate the potential effects of any action that may be taken in a floodplain and to assure that potential harm is minimized.

The following agencies would be involved in any floodplain management efforts:

- United States Environmental Protection Agency
- U.S. Army Corps of Engineers
- Federal Emergency Management Agency
- New Jersey Department of Environmental Protection

As a responsibility under the cooperative agreement between the USEPA and the NYSDEC the appropriate agencies and concerned groups will be kept abreast of proposed design and construction activities.

The EPA in conjunction with the NJDEP has determined that the proposed activities for the site are the most practical options available in light of current funding limitations and technical constraints. It is not expected that working in the low-lying area will have any major or long-term detrimental impacts on the floodplain, since the majority of the work will be temporary sediment control measures.

Flood Hazard Assessment

Part of the future recommended remedial action for the Pijak Farm site includes the removal of contaminated soil along the stream channel and thus involved working in the floodplain. The benefits of reducing direct contact of the residual contaminants and the migration of these contaminants into the stream far outweigh the minimal impacts on the floodplain. The NJDEP Bureau of Floodplain Management will require the incorporation of specific environmental specifications into the cleanup plan to minimize the impacts on the floodplain. In addition, the cleanup contractor will be required to obtain a Stream Encroachment Permit from the NJDEP prior to the initiation of any work in the floodplain area.

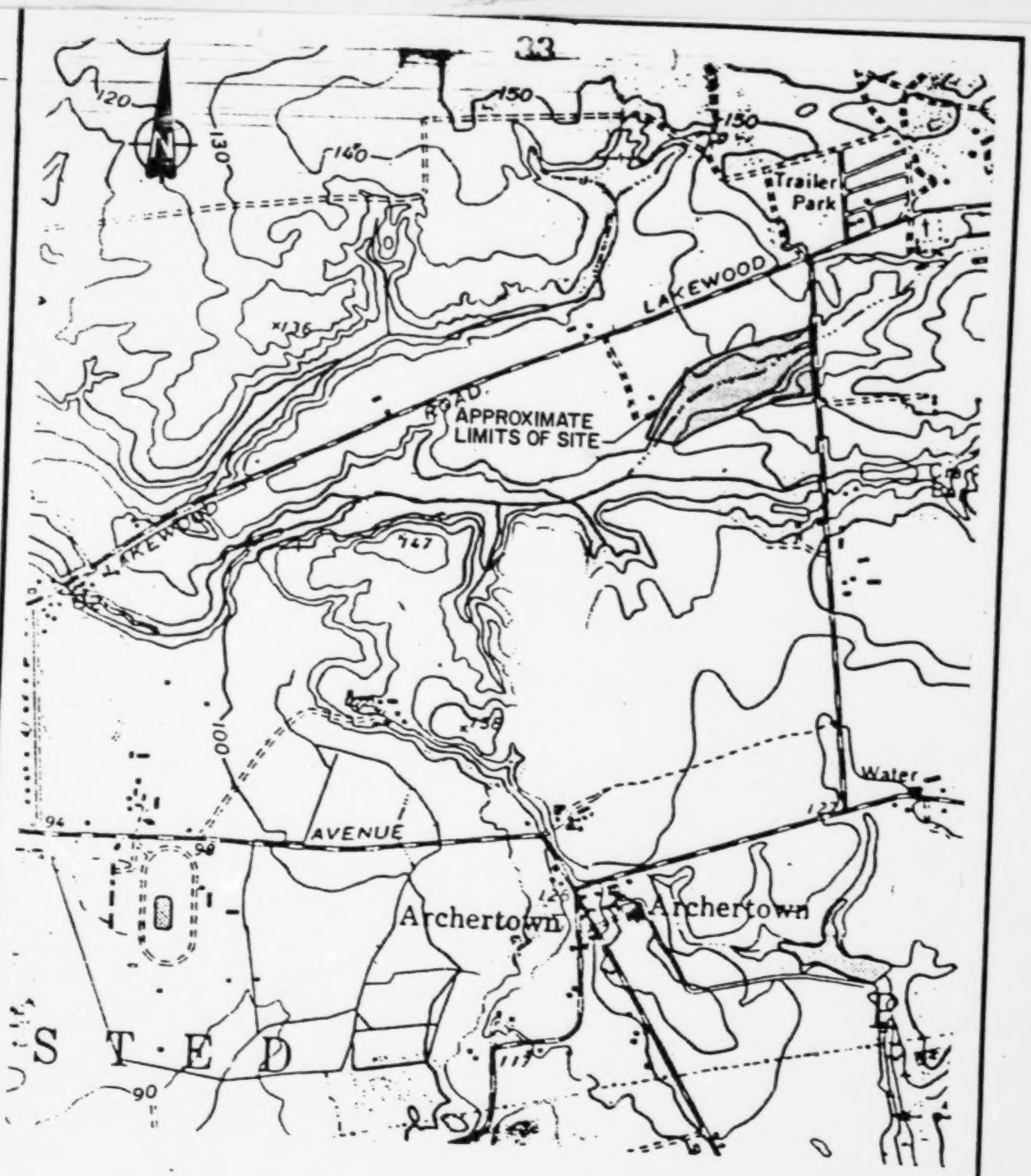


FIGURE 1
PIJAK FARM
PLUMSTED TOWNSHIP, NEW JERSEY
APPROXIMATE SITE LIMITS

SCALE: 1" = 1,200'±
SOURCE: U.S.G.S. TOPO MAPS

Elson T. Killam Associates, Inc.
Environmental and Hydraulic Engineers
27 Bleeker Street Millburn, New Jersey 07041